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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/654,274	09/01/2000	Yoshinori Miyajima	32930	5858

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EXAMINER

APPIAH, CHARLES NANA

ART UNIT	PAPER NUMBER
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2682

DATE MAILED: 05/05/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/654,274

Applicant(s)

MIYAJIMA ET AL.

Examiner

Charles Appiah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-15, 17-21, 23-27 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 11, 16, 22 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 19-23 should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1 and 3 are objected to because of the following informalities: It appears the word "thethreshold" on line 17 of claim 1 and line 14 of claim 3 should be written as "the threshold" to correct an apparent typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 9, 14, 17, 20, 23, 26, 29, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by **Rich et al. (5,758,271)**.

Regarding claims 1-4, 17, 23, 29 and 30, Rich discloses a radio receiver comprising: a gain controlling means (112), for controlling a gain of the radio receiver

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(108), an electric field intensity detecting means (217) for detecting an electric field intensity of a received signal (see col. 6, lines 46-57), an error rate measuring means for measuring an error rate of the received signal (see col. 6, lines 27-34), a threshold setting means for setting a threshold of electric field intensity level to start gain control operation of the gain controlling means in response to a measured result of the error rate measuring means (see col. 10, lines 15-43), and a first controlling means for causing the gain controlling means to start the gain control operation when the electric field intensity detected by the electric field intensity detecting means reaches the threshold of electric field intensity level which starts the gain control operation (see col. 7, line 54 to col. 8, line 14, col. 10, lines 44-57). See Figs. 1-4.

Regarding claims 5 and 6, Rich further shows wherein the gain controlling means is a stepwise gain control type, which changes the gain by a predetermined amount when a signal of the received signal exceeds a predetermined level or a continuous gain control type which changes the gain in response to a signal level of the received signal (see col. 8, lines 15-48, col. 10, lines 1-15).

Regarding claim 9, Rich further discloses a threshold range setting means for setting an available range of the threshold of electric intensity level, which is defined by a maximum value and a minimum value (see col. 8, lines 32-38).

Regarding claim 14, Rich further discloses a threshold range setting means for setting an available range of the threshold of electric intensity level, which is defined by a maximum value and a minimum value (see col. 8, lines 32-38).

Regarding claim 20, Rich further discloses a threshold range setting means for setting an available range of the threshold of electric intensity level, which is defined by a maximum value and a minimum value (see col. 8, lines 32-38).

Regarding claim 26, Rich further discloses a threshold range setting means for setting an available range of the threshold of electric intensity level, which is defined by a maximum value and a minimum value (see col. 8, lines 32-38).

Regarding claim 31, Rich's teaching of implementing the gain controller in software and using a signal processor (see col. 5, lines 47-67), read on a computer-readable recording medium for storing a program which causes a computer to execute a radio receiving method.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-8, 10, 12-13, 15, 18-19, 21, 24-25, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rich et al** as applied to claims 1, 2, 17 and 29 above, and further in view of **Pearce et al. (4,785,418)**.

Regarding claims 7-8, 10, 12-13, 15, 18-19, 21, 24, 25 and 27 Rich do not specifically teach wherein the threshold setting means decides a change direction and/or a change amount of the threshold of the electric intensity level in a succeeding reception based on a measured result by the error rate measuring means in a present

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reception and a measured result by the error rate measuring means in a present reception and a measured result by the error rate measuring means in a present reception and a measured reception result by the error rate measuring means in a preceding reception or does not change a setting of the threshold of electric intensity level when the threshold of electric intensity level is more than the maximum value or is less than the minimum value of the available set range and a measured result by the error rate measuring means is less than a predetermined value.

Pearce discloses an automatic gain control in a digital signal processor in which samples of an incoming electrical signal multiplied by a present gain factor is compared to a constantly changing maximum and if the magnitude of any one of the resultant products is greater than the present maximum, then a new maximum is established and if the maximum value is compared to an upper and lower threshold and if the maximum does not lie within the two thresholds, then the gain factor is adjusted proportional to the error calculated by the amount the signal is outside the threshold range (see col. 3, lines 29-45). According to Pearce there is no gain adjustment if the running maximum is not greater than the upper threshold (see col. 4, line 26 to col. 5, line 37, Figs. 3-4), suggesting the use of a dynamic threshold in providing gain control.

It would therefore have been obvious to one of ordinary skill in the art to use the dynamic threshold means of Pearce with the system of Rich in order to have the benefit of adapting proportional automatic gain control to changing signal conditions using variable thresholding

Allowable Subject Matter

7. Claims 11, 16, 22, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Peterzell et al. (5,469,115) discloses a method for automatic gain control in a digital receiver.

Takaki (6,032,031) discloses a receiver for suppressing intermodulation.

Kamgar et al. (6,324,387) discloses a controlled receiver with closed loop automatic gain control.

Tjahjadi et al. (5,040,194) discloses an automatic gain control circuit via variable threshold setting means.

Zhang (6,038,435) discloses a variable step-size automatic gain control method for a receiver.


Nawata (5,050,192) discloses an automatic gain control circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Appiah whose telephone number is 703 305-4772. The examiner can normally be reached on M-F 7:30AM-5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 703 305-6739. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703 308-6296 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306-0377.


CHARLES APPIAH
PRIMARY EXAMINER

CA
April 29, 2003